JP02T420 '60940650

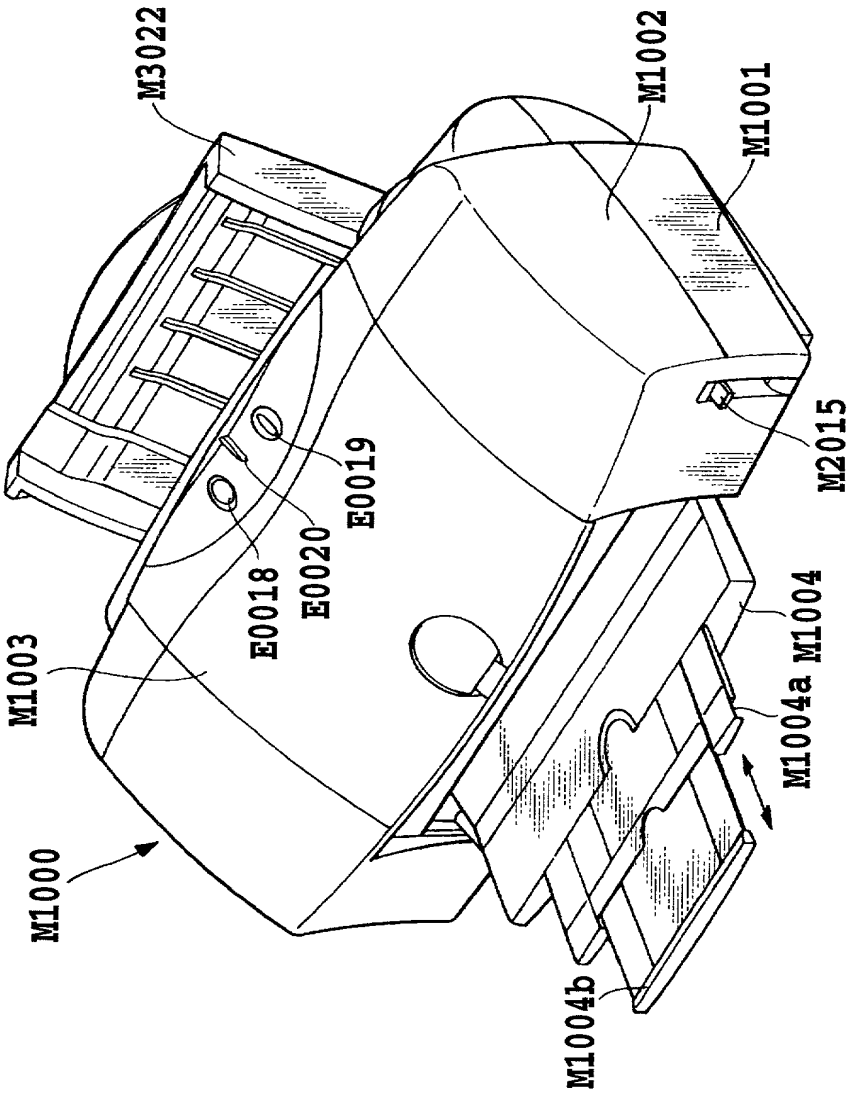


FIG.1

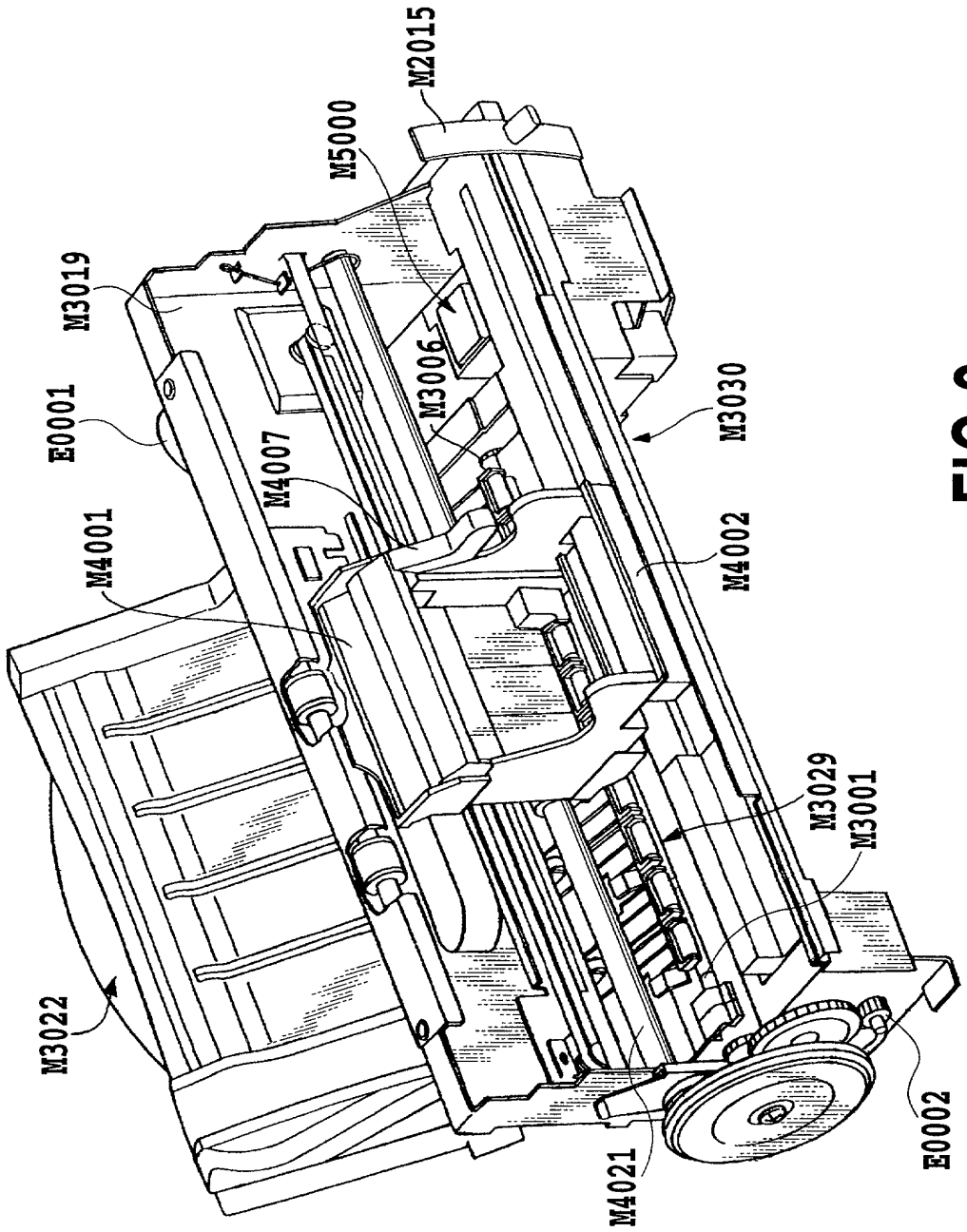

M2015
M5000
M3019
M3006
E0001
M3030
M4007
M4001
M4002
M3029
M3001
M3022
M4021
E0002

FIG.2

EP 2 747 604 A1

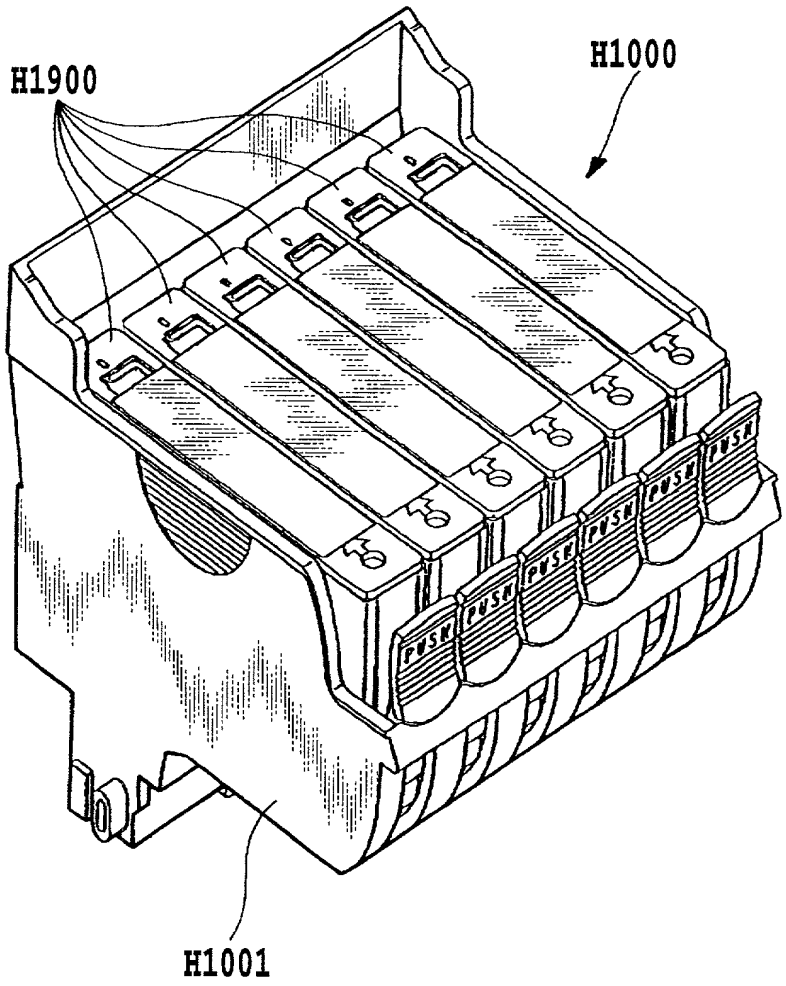


FIG.3

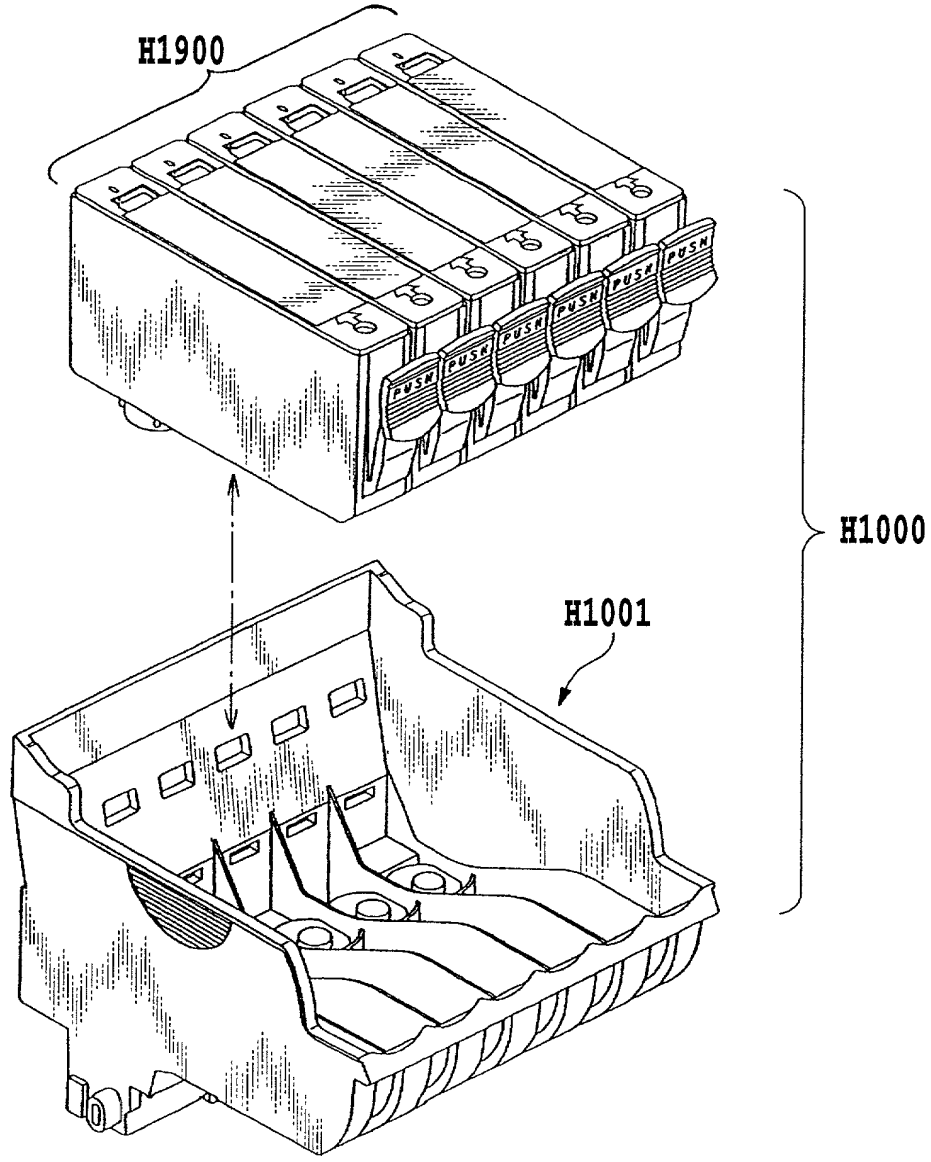


FIG.4

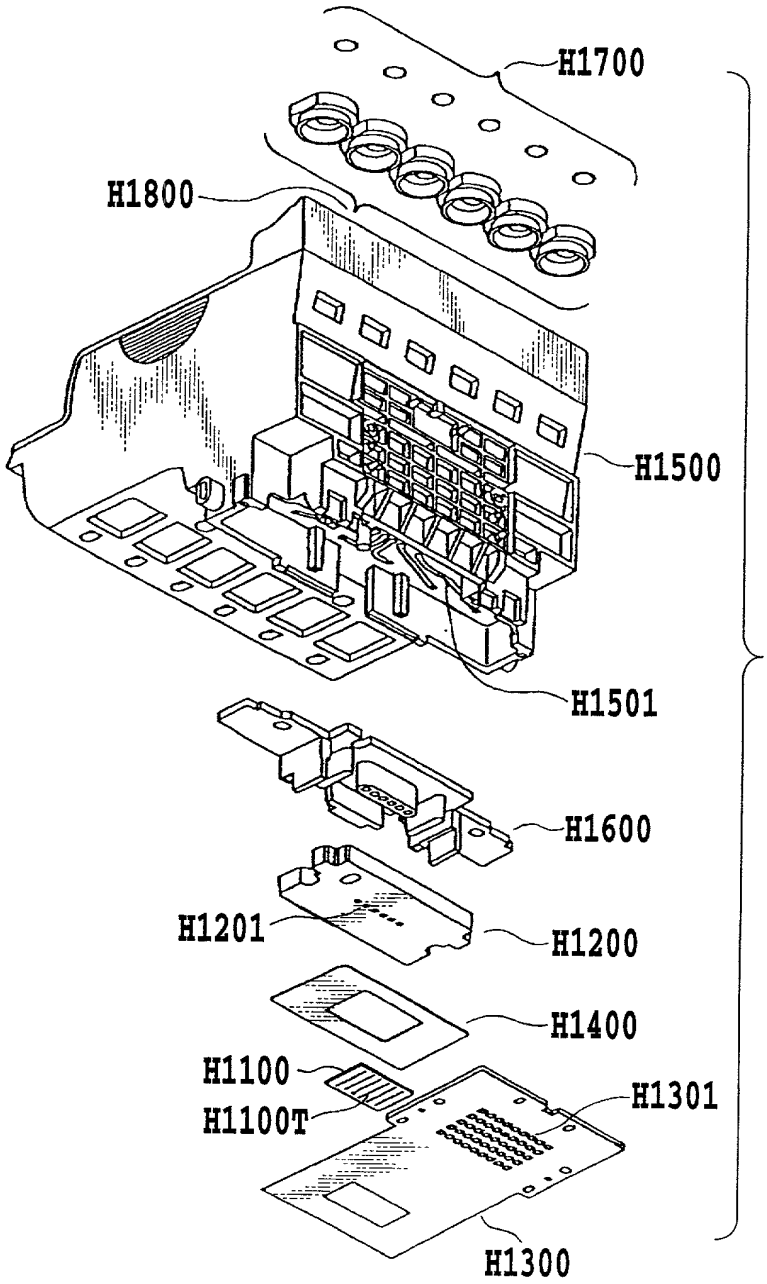

H1700
H1800
H1500
H1501
H1600
H1201
H1200
H1400
H1100
H1100T
H1301
H1300

FIG.5

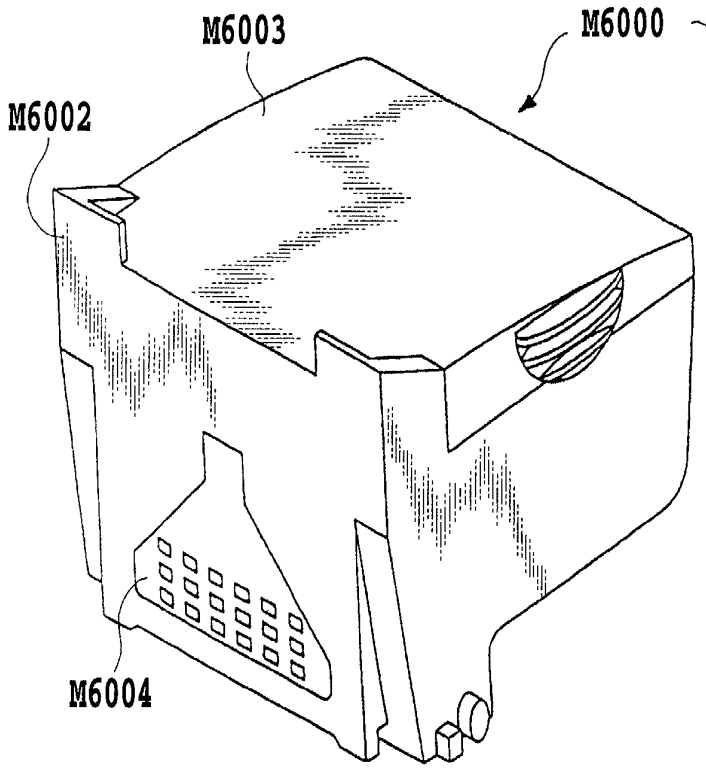

M6003
M6000
M6002
M6004

FIG.6A

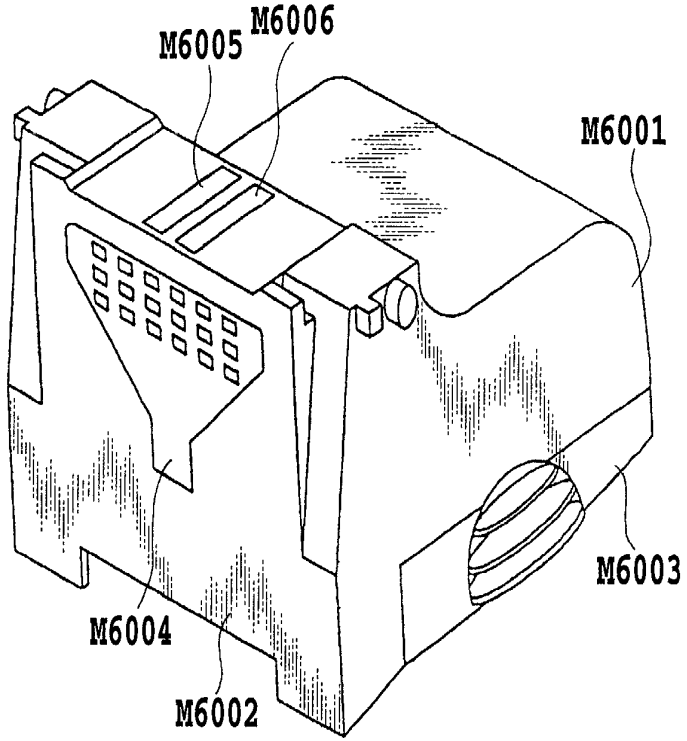

M6005
M6006
M6001
M6003
M6004
M6002

FIG.6B

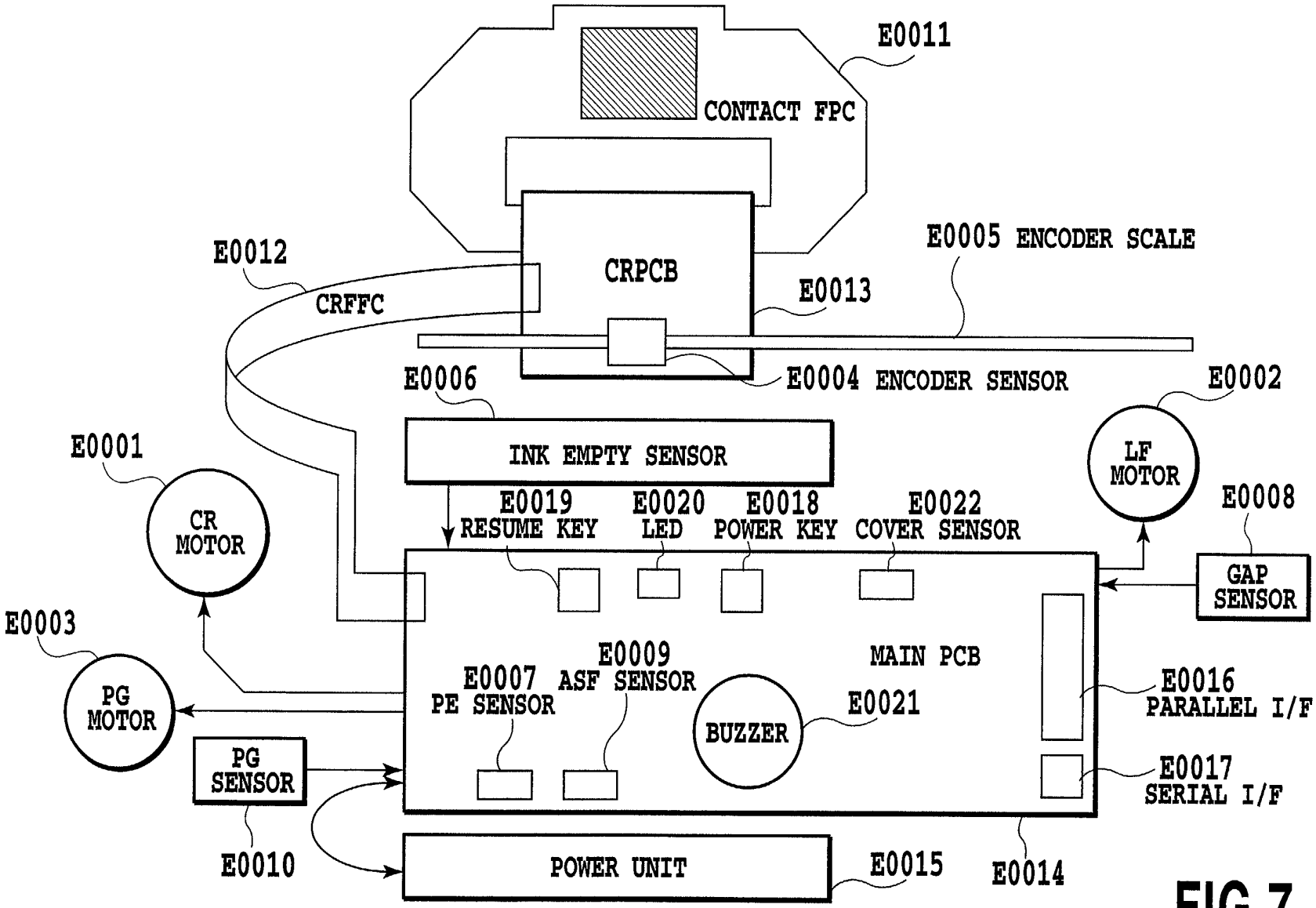

E0011
CONTACT FPC
E0012
CRFFC
CRPCB
E0013
E0005 ENCODER SCALE
E0006
E0004 ENCODER SENSOR
E0002
E0001
INK EMPTY SENSOR
LF MOTOR
CR MOTOR
E0019 RESUME KEY
E0020 LED
E0018 POWER KEY
E0022 COVER SENSOR
E0008
GAP SENSOR
E0003
E0009
MAIN PCB
E0007 PE SENSOR
ASF SENSOR
BUZZER
E0021
E0016 PARALLEL I/F
PG MOTOR
PG SENSOR
E0017 SERIAL I/F
E0010
POWER UNIT
E0015
E0014

FIG.7

FIG.8

FIG.8A	FIG.8B

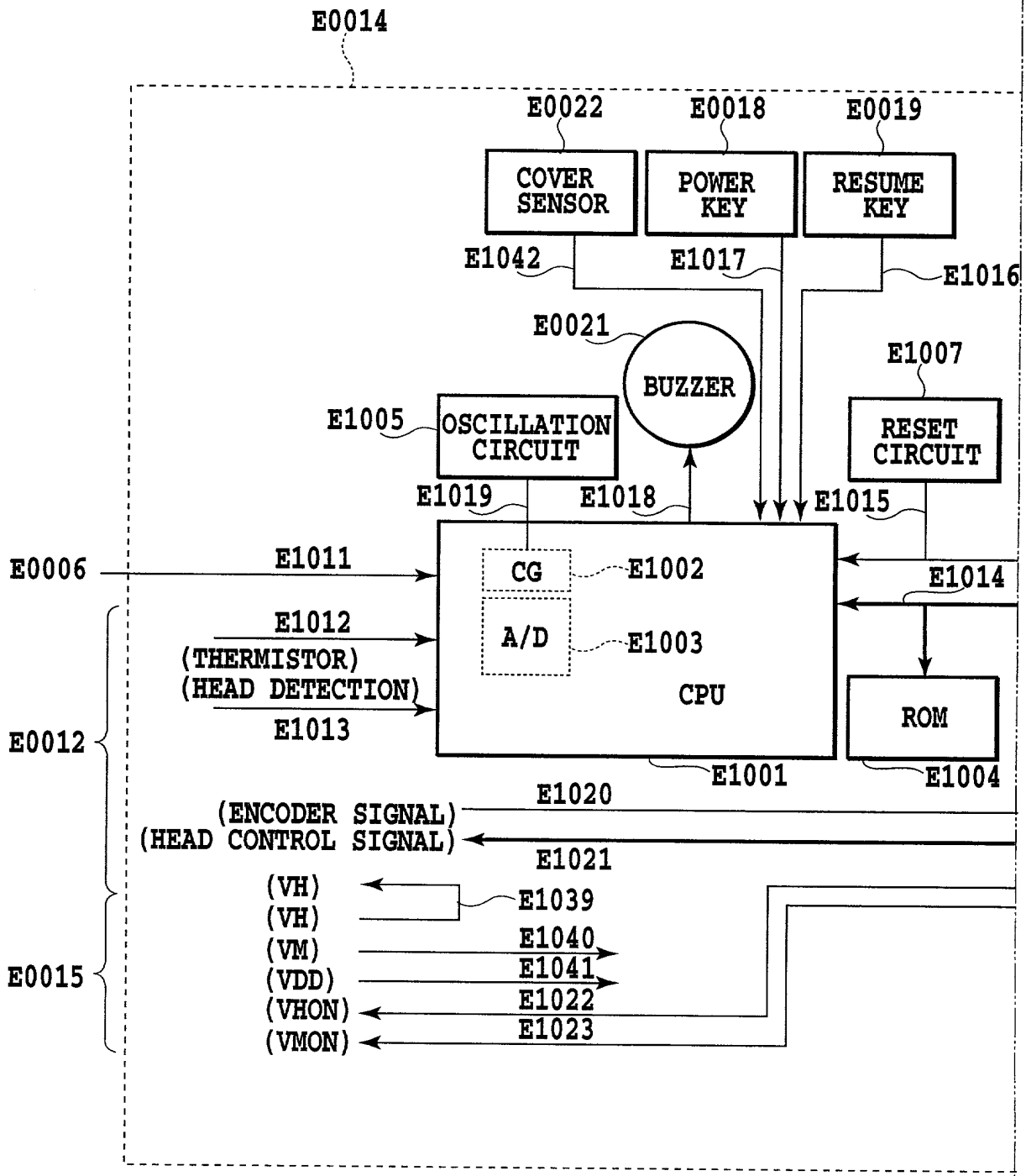


FIG.8A

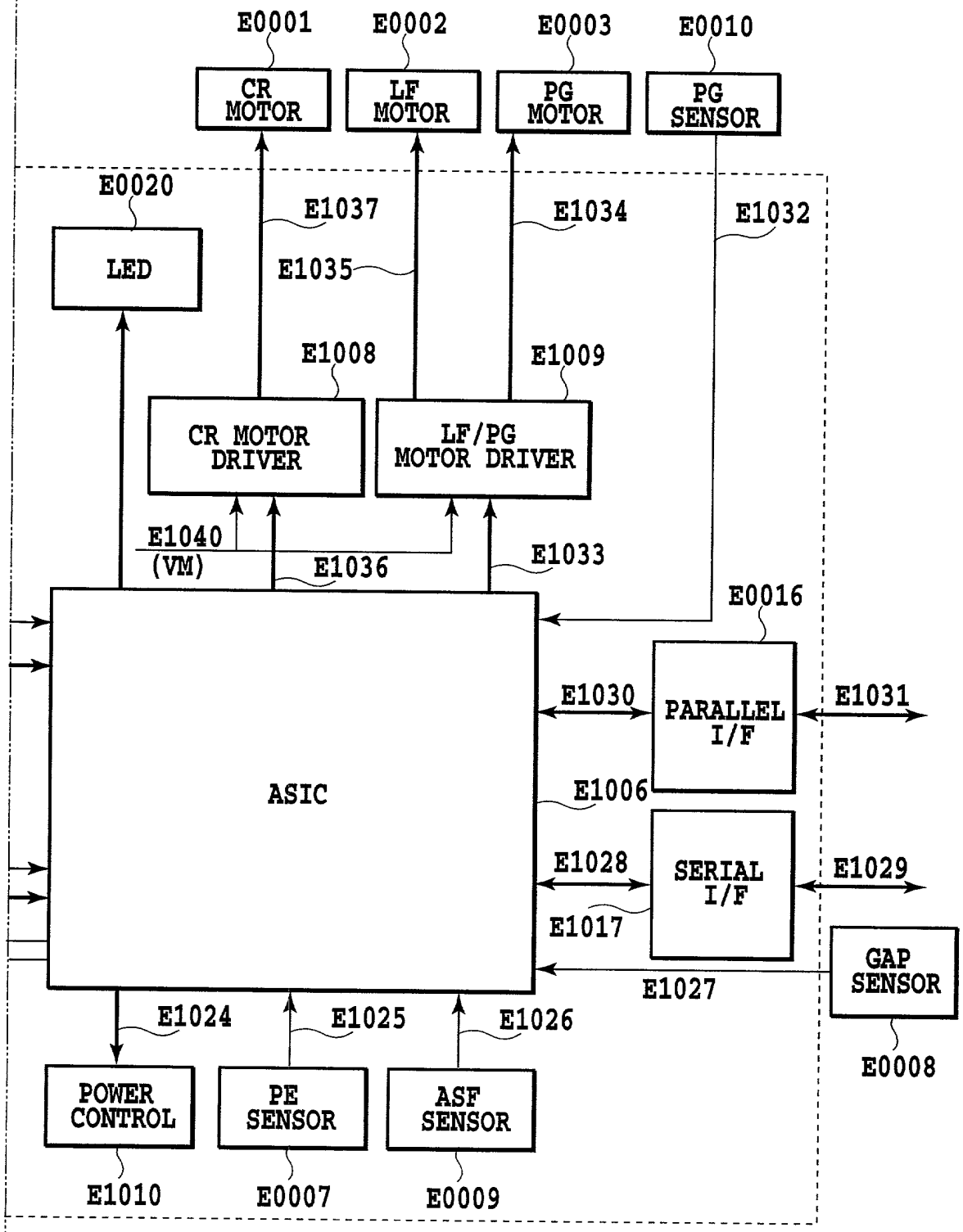

E0001
E0002
E0003
E0010
CR MOTOR
LF MOTOR
PG MOTOR
PG SENSOR
E0020
LED
E1037
E1035
E1034
E1032
E1008
E1009
CR MOTOR DRIVER
LF/PG MOTOR DRIVER
E1040
(VM)
E1036
E1033
E0016
ASIC
E1030
PARALLEL I/F
E1031
E1006
E1028
SERIAL I/F
E1029
E1017
GAP SENSOR
E1027
E1024
E1025
E1026
POWER CONTROL
PE SENSOR
ASF SENSOR
E0008
E1010
E0007
E0009

FIG.8B

FIG.9

FIG.9A FIG.9B

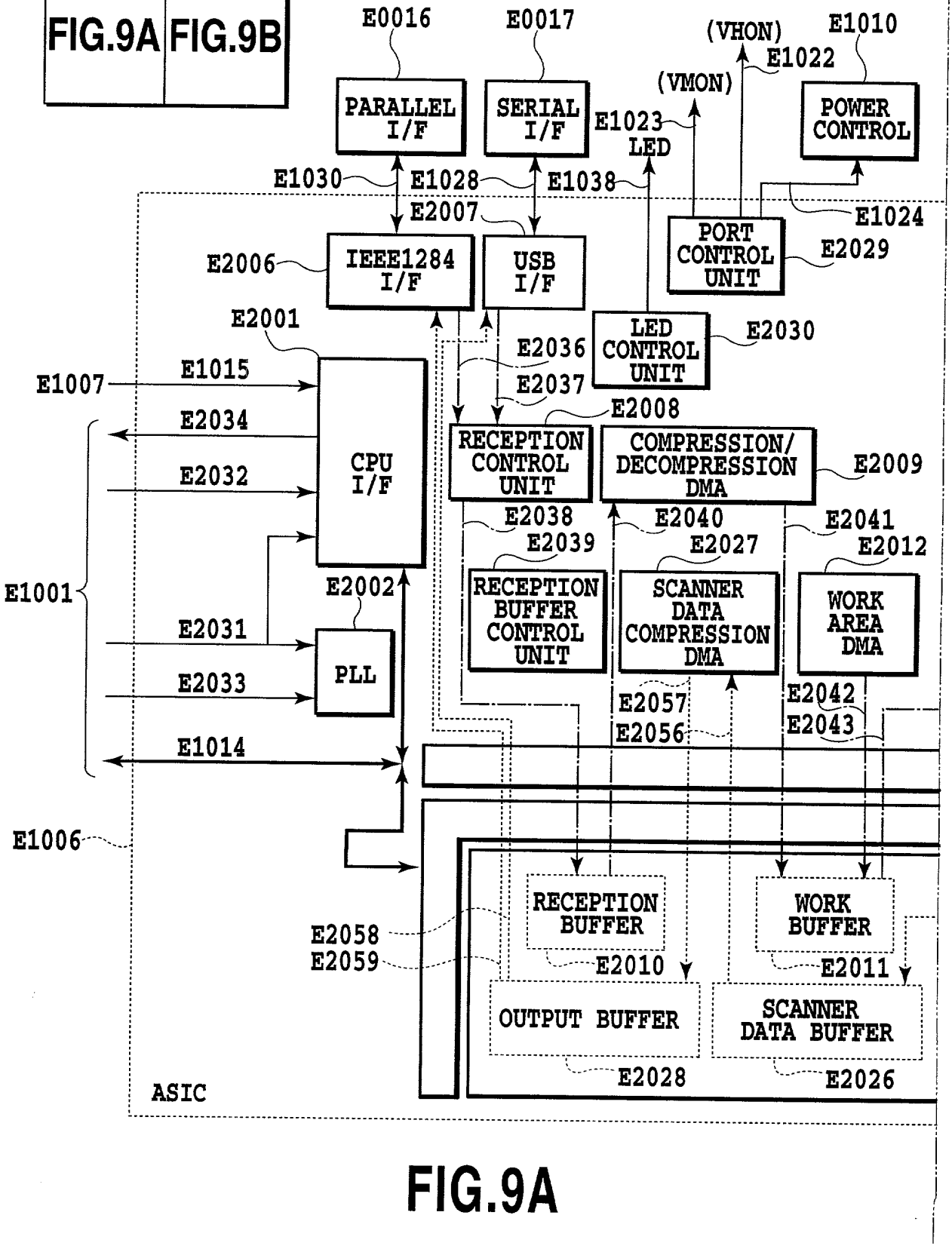


FIG.9A

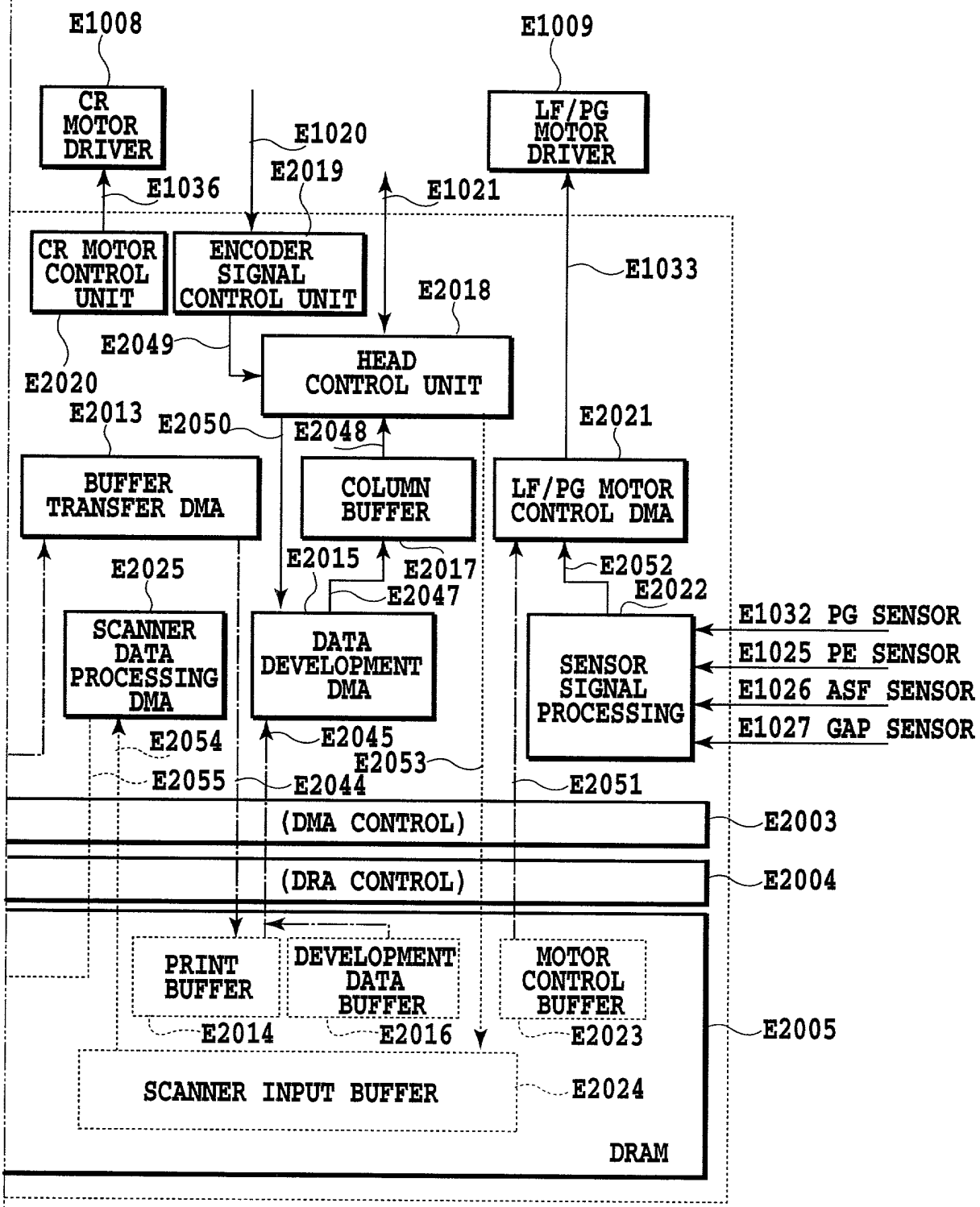

E1008
CR MOTOR DRIVER
E1009
LF/PG MOTOR DRIVER
E1020
E2019
E1036
E1021
CR MOTOR CONTROL UNIT
ENCODER SIGNAL CONTROL UNIT
E1033
E2018
E2049
HEAD CONTROL UNIT
E2020
E2013
E2050
E2048
E2021
BUFFER TRANSFER DMA
COLUMN BUFFER
LF/PG MOTOR CONTROL DMA
E2025
E2015
E2017
E2052
E2047
E2022
E1032 PG SENSOR
E1025 PE SENSOR
E1026 ASF SENSOR
E1027 GAP SENSOR
SCANNER DATA PROCESSING DMA
DATA DEVELOPMENT DMA
SENSOR SIGNAL PROCESSING
E2054
E2045
E2053
E2055
E2044
E2051
(DMA CONTROL)
E2003
(DRA CONTROL)
E2004
PRINT BUFFER
DEVELOPMENT DATA BUFFER
MOTOR CONTROL BUFFER
E2005
E2014
E2016
E2023
SCANNER INPUT BUFFER
E2024
DRAM

FIG.9B

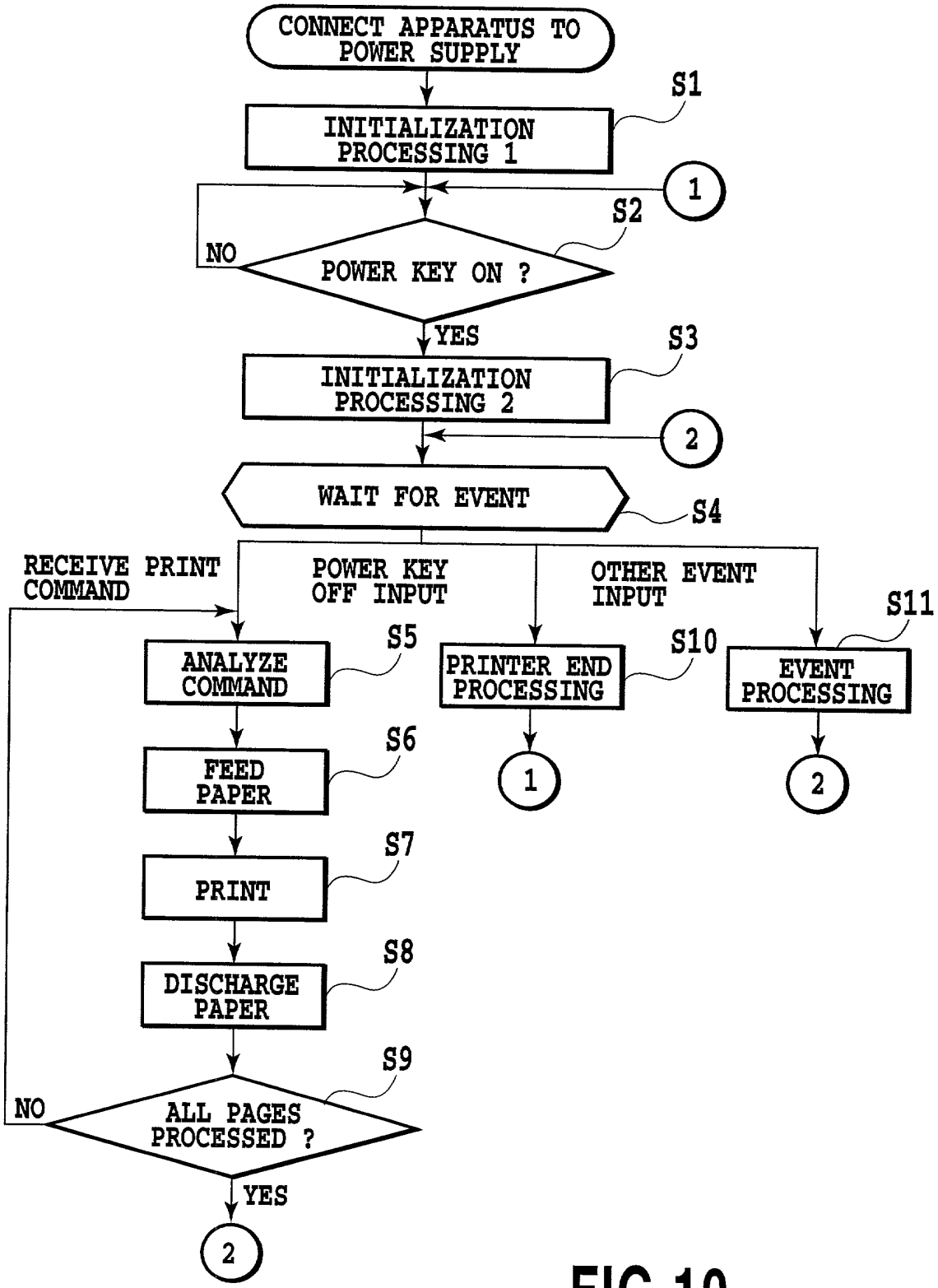

CONNECT APPARATUS TO POWER SUPPLY
S1
INITIALIZATION PROCESSING 1
1
S2
NO
POWER KEY ON ?
YES
S3
INITIALIZATION PROCESSING 2
2
WAIT FOR EVENT
S4
RECEIVE PRINT COMMAND
POWER KEY OFF INPUT
OTHER EVENT INPUT
S11
S5
ANALYZE COMMAND
S10
PRINTER END PROCESSING
EVENT PROCESSING
S6
FEED PAPER
1
2
S7
PRINT
S8
DISCHARGE PAPER
S9
NO
ALL PAGES PROCESSED ?
YES
2

FIG.10

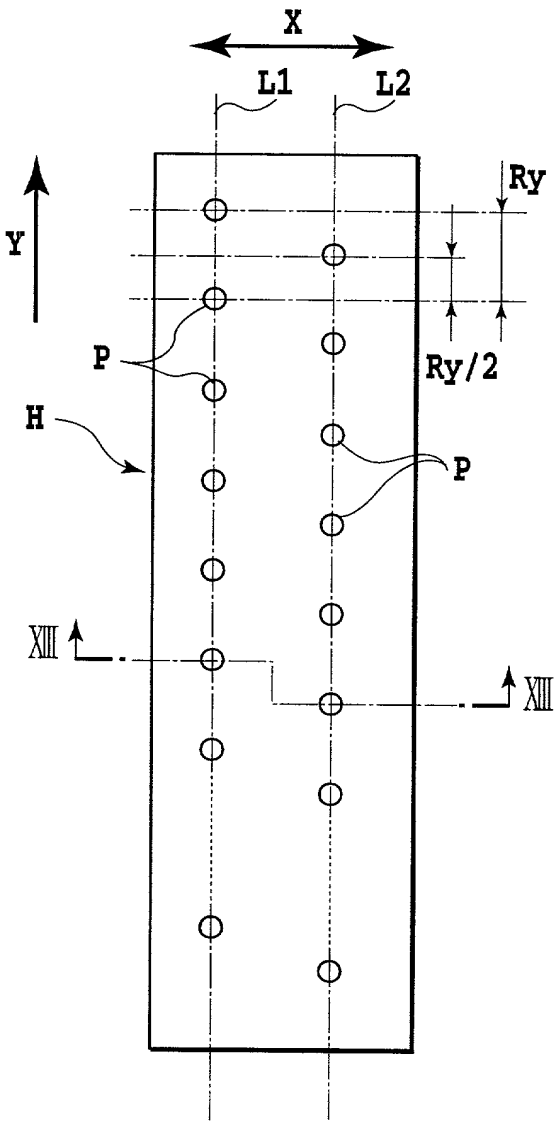


FIG.11

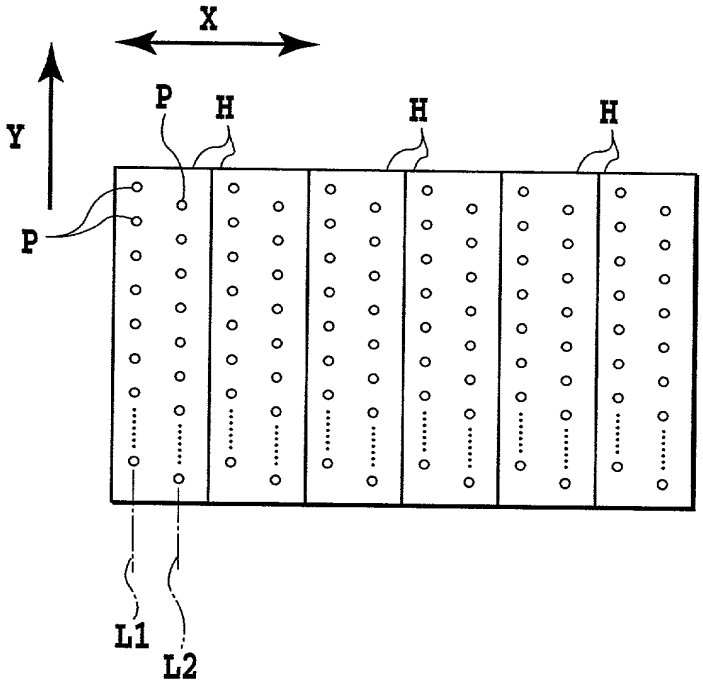


FIG.12

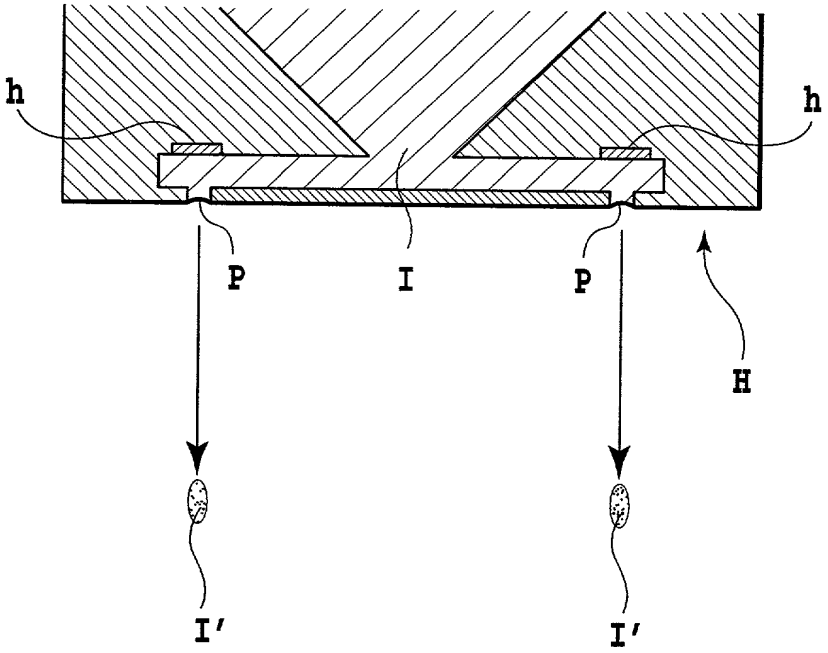


FIG.13

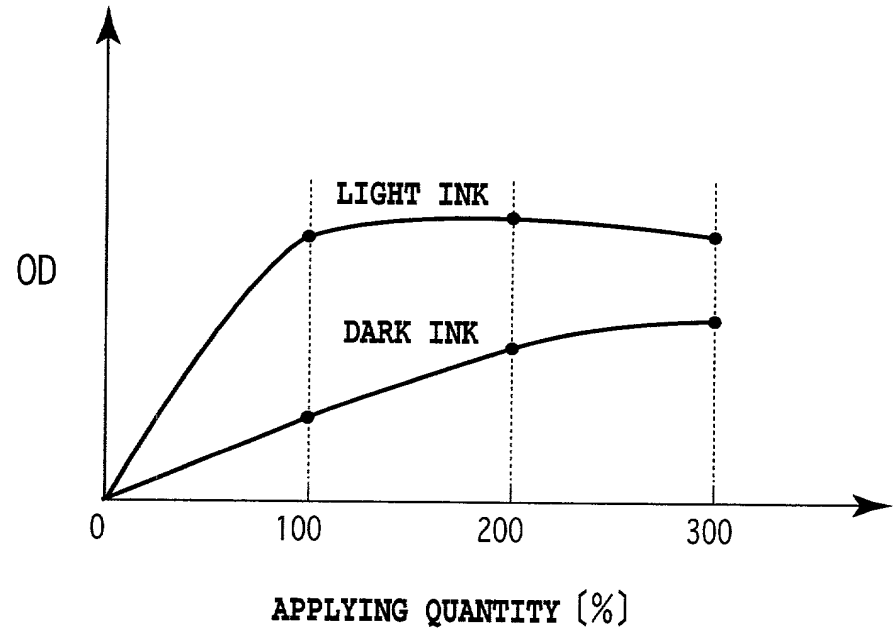


FIG.14

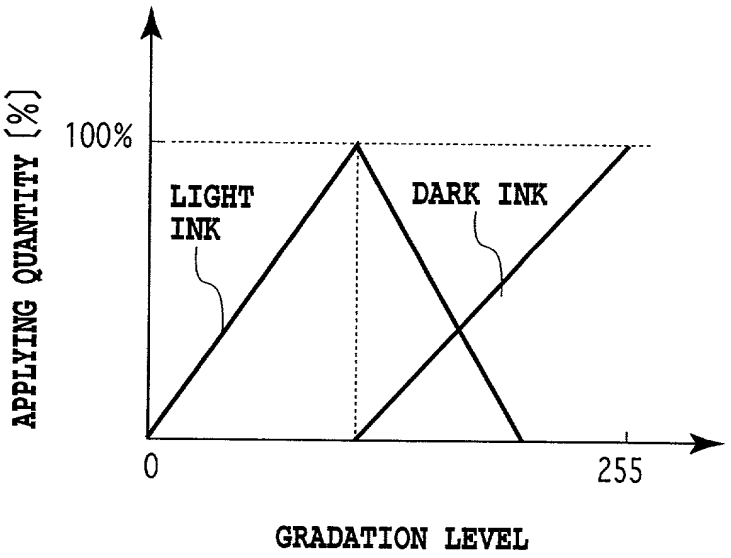

APPLYING QUANTITY [%]
100%
LIGHT INK
DARK INK
0
255
GRADATION LEVEL

FIG.15

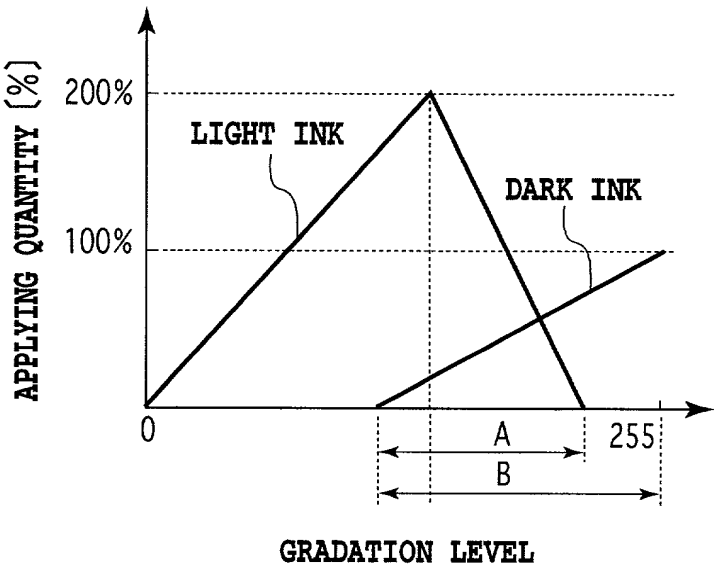

APPLYING QUANTITY (%)
200%
100%
LIGHT INK
DARK INK
0
A
B
255
GRADATION LEVEL

FIG.16

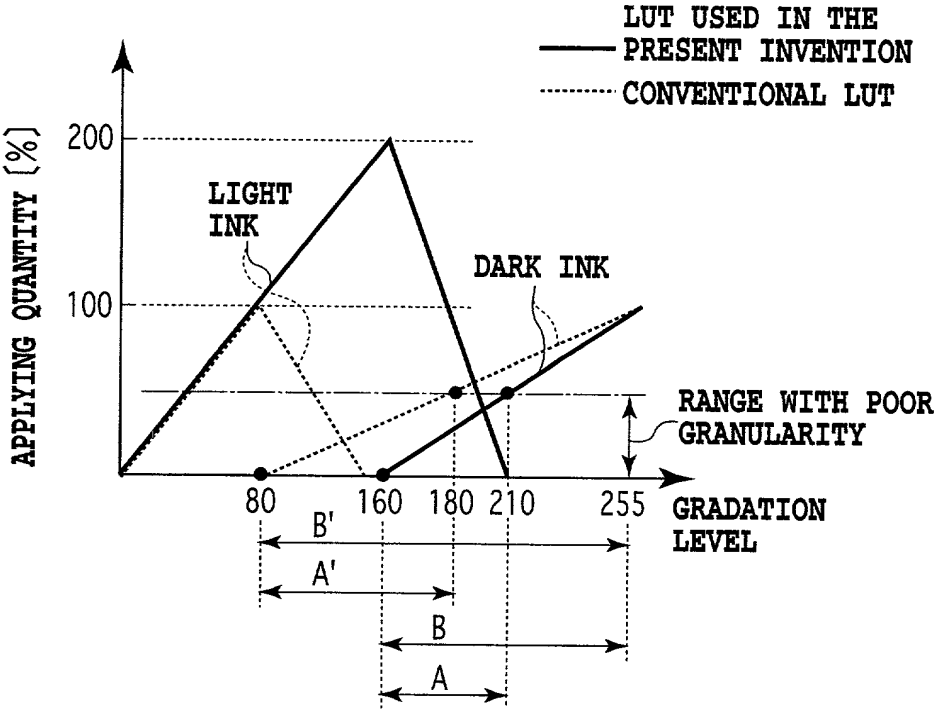

LUT USED IN THE PRESENT INVENTION
CONVENTIONAL LUT
APPLYING QUANTITY [%]
200
100
LIGHT INK
DARK INK
RANGE WITH POOR GRANULARITY
80
160
180
210
255
GRADATION LEVEL
B'
A'
B
A

FIG.17

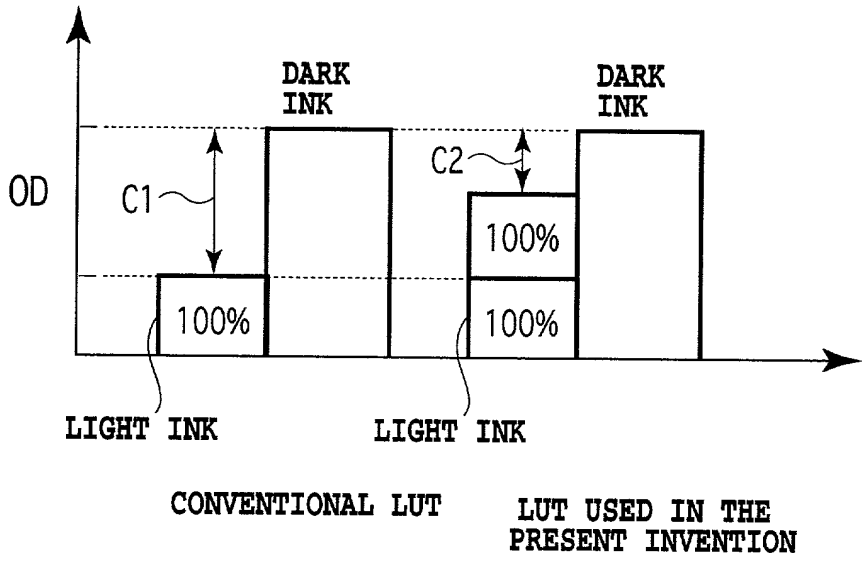

OD
C1
C2
DARK INK
DARK INK
100%
100%
100%
LIGHT INK
LIGHT INK
CONVENTIONAL LUT
LUT USED IN THE PRESENT INVENTION

FIG.18

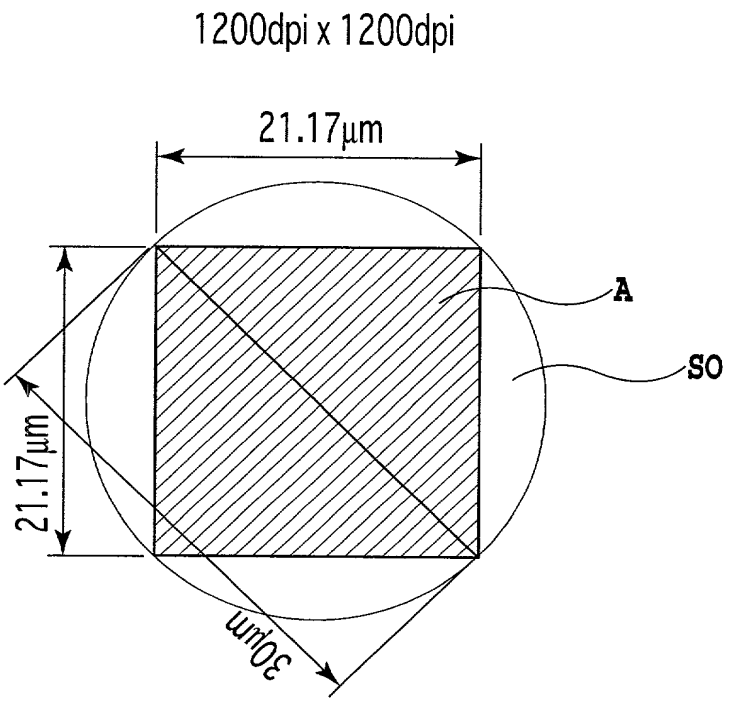


FIG.19

DOT AREA VERSUS UNIT PIXEL AREA

	RESOLUTION	600dpi	720dpi	1200dpi	1440dpi	2400dpi
	UNIT PIXEL AREA	1792μm^2	1245μm^2	448μm^2	311μm^2	112μm^2
DOT DIAMETER 30μm	706.84μm	0.39	0.57	1.58	2.27	6.31
DOT DIAMETER 35μm	962.08μm	0.54	0.77	2.15	3.09	8.59
DOT DIAMETER 40μm	1256.6μm	0.70	1.01	2.80	4.04	11.22
DOT DIAMETER 50μm	1963.4μm	1.10	1.58	4.38	6.31	17.53
DOT DIAMETER 70μm	3848.3μm	2.15	3.09	8.59	12.37	34.36

FIG.20

TOETZO"60960660

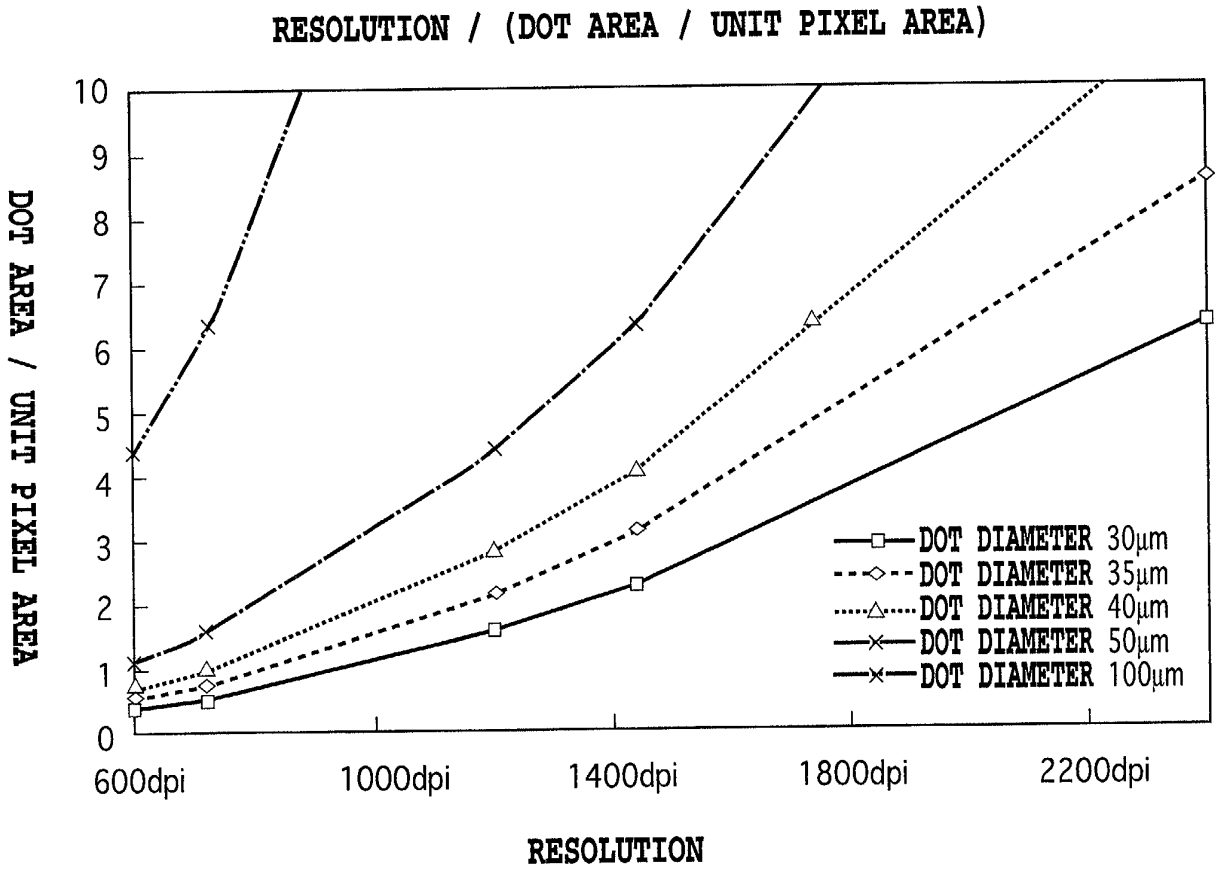
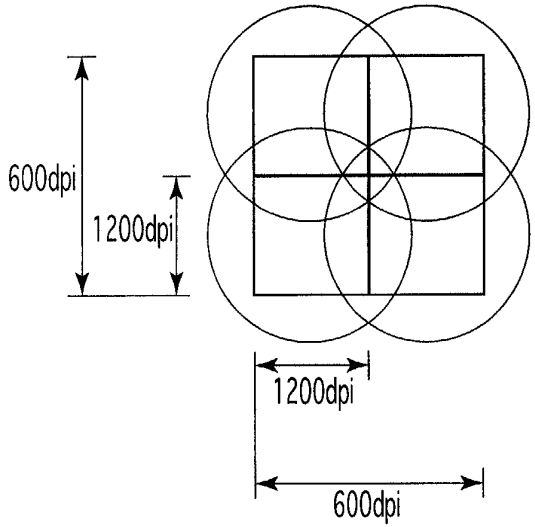
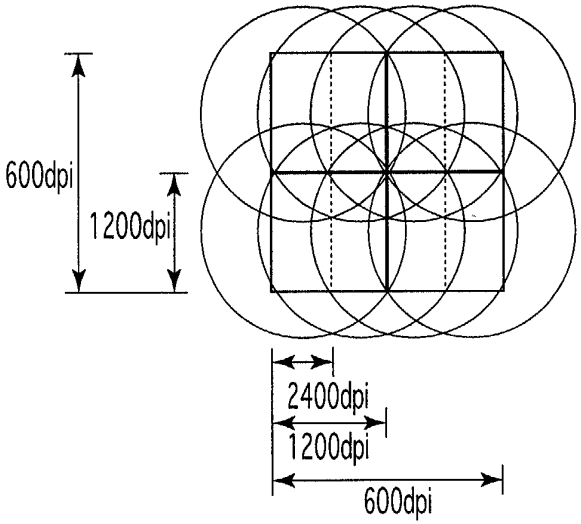


FIG.21



1200dpi x 1200dpi

FIG.22A



2400dpi x 1200dpi

FIG.22B

TOKIZO 6096660

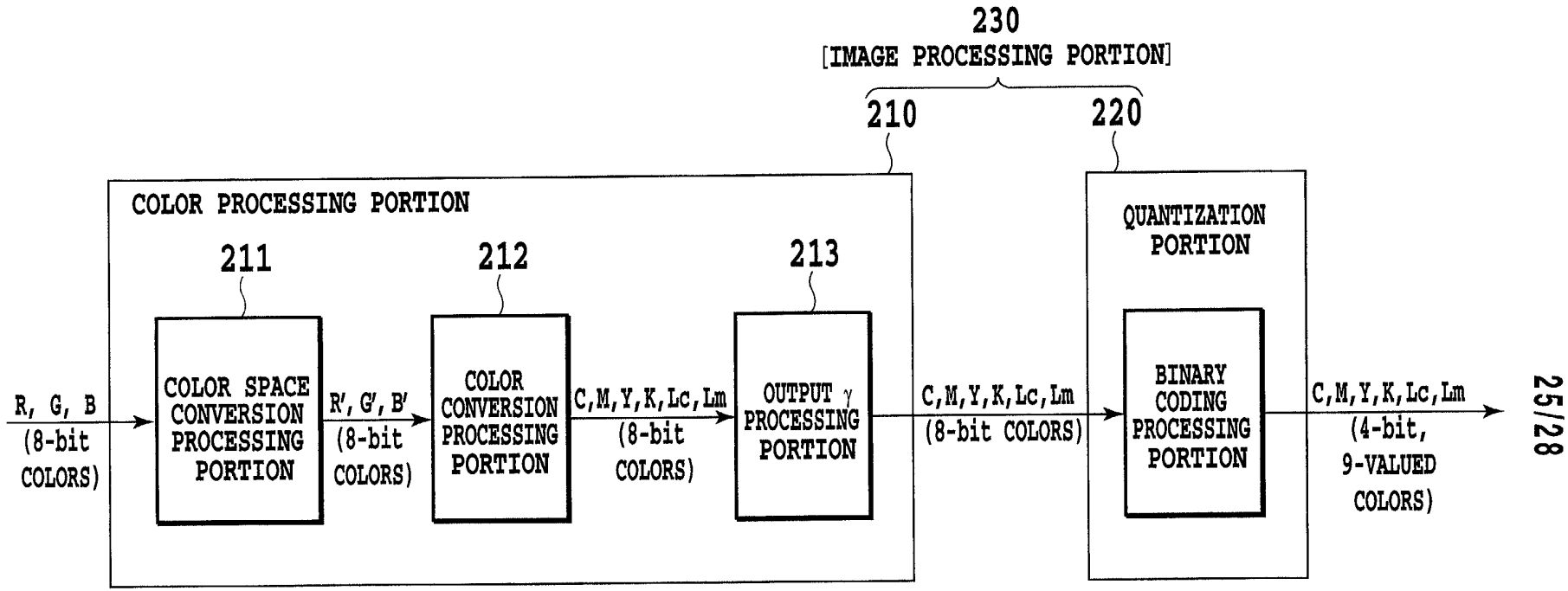


FIG.23

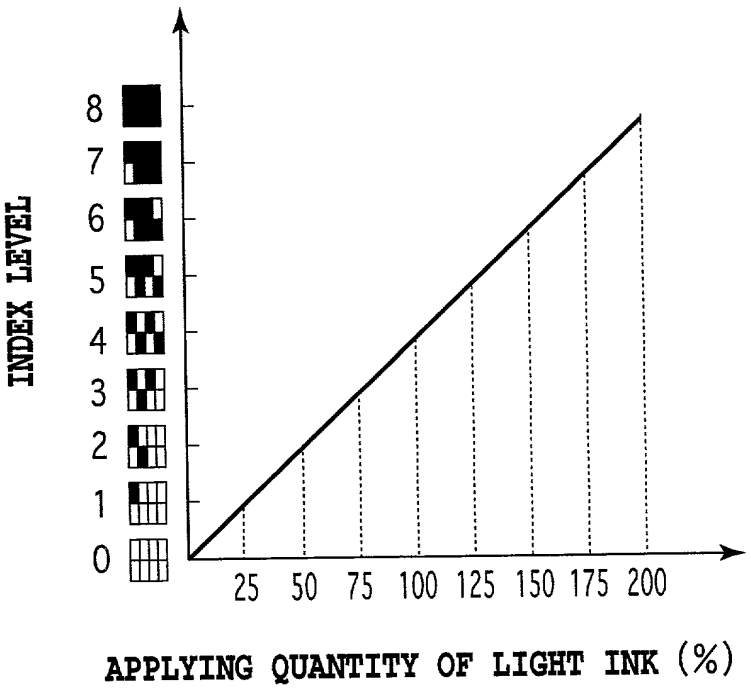

INDEX LEVEL
8
7
6
5
4
3
2
1
0
25 50 75 100 125 150 175 200
APPLYING QUANTITY OF LIGHT INK (%)

FIG.24

TOETZO" 6095060

CORRELATION BETWEEN VALUE OF GRANULARITY EVALUATION FUNCTION AND SUBJECTIVE EVALUATION

GRANULARITY	≦0.4	0.4~0.6	0.6~0.8	≧0.8
SUBJECTIVE EVALUATION (GRANULARITY)	◎ (EXTREMELY EXCELLENT)	○ (EXCELLENT)	● (POOR)	△ (EXTREMELY POOR)
RESULT	NO DOTS ARE NOTICEABLE AT ALL	DOTS ARE NOTICEABLE WITH REDUCED DISTANCE	DOTS ARE NOTICEABLE WITH LEAST DISTANCE OF DISTINCT VISION	ROUGHNESS OF DOTS IS REMARKABLE

FIG.25

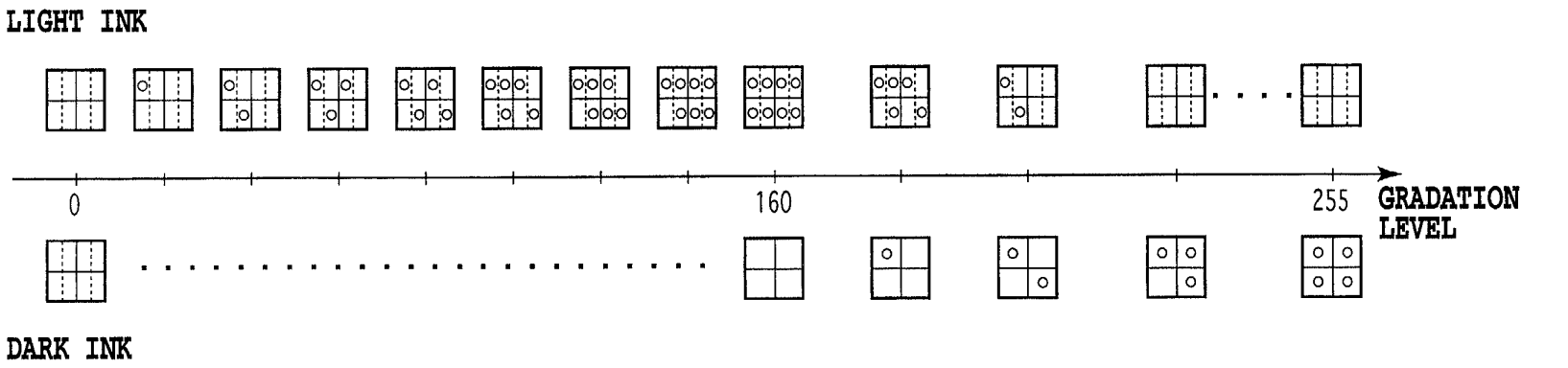


FIG.26